

THE FOOD REQUIREMENTS OF OWLS COMPARED WITH
THOSE OF DIURNAL RAPTORS

Dale B. Hanmer

Little has been published on the food requirements of owls since the work of Craighead & Craighead (1956) in the U.S.A. A Verreaux's Eagle Owl *Bubo lacteus* was kept for four months in 1975/76 and two White-faced Scops Owls *Otus leucotis* for three months in 1978/79 at Nchalo, Malaŵi (16°16'S, 34°55'E). The birds were weighed at intervals, as was their food, to the nearest gram.

OBSERVATIONS

VERREAUX'S EAGLE OWL

The immature Verreaux's Eagle Owl was given initially 70-80 g daily and later 80-95 g. Food consisted of small birds, small rodents, insects (crickets, grasshoppers, locusts, dragonflies and alate termites), minced beef, ox heart and liver. The owl was fed at dawn, dusk and about 21:00 hrs, but seldom appeared to be particularly hungry, being generally rather slow to take and eat food. However, there were two occasions when bird specimens being prepared for the museum were grabbed and eaten. The bird's weights and the average quantities of food it received over three periods are given in Table 1.

TABLE 1

Weight of food eaten daily and body weight changes of one Bubo lacteus

Age/sex		1st Wt (g)	2nd Wt (g)	Average Wt food/day (g)	Days	Wt/day gained (g)
Immature male	Period 1	1505	1536	77.2	28	1.1
	Period 2	1536	1603	88.5	58	1.2
	Period 3	1603	1625	85.2	34	0.7

It was assumed to be male (wing at six months old 445 mm; see Ginn (1976) for male and female wing-lengths). It gained weight slowly during the period it was kept and its daily food requirement was apparently just met; this seemed to be about 5.5 per cent of the body weight. This figure probably provided for the equivalent of hunting energy, as the bird had the run of the house and spent much time in play. Wastage of about 10 per cent is included in the food figures in Table 1, leaving an actual daily consumption need of about 5 per cent of body weight. Wastage was determined by weighing some of the daily castings and discarded food (mainly bird heads and wings and the hard parts of large insects).

WHITE-FACED SCOPS OWL

One White-faced Scops Owl was probably an adult female (wing 202 mm) and the other an immature, possibly male (wing at four months old 192 mm), just learning to fly in October 1978 (see McLachlan & Liversidge (1978) for male and female wing-lengths). Initially both birds were fed 30-35 g daily, the immature usually eating a little more than the adult. Food consisted of insects, minced beef, small birds and small rodents; the birds and rodents were usually chopped into four pieces. Generally both owls were fed at the same time, each bird being handed a similar sized food item at the same moment, but sometimes mince or alate termites were placed in a dish for the owls to help themselves.

After about six weeks both birds almost stopped eating, so their food was reduced to 20-25 g daily. After 16 days on this regime both birds became very hungry and so were given 30-35 g daily to fatten them before release. The adult bird averaged 241 g over the whole period that it was kept and the young bird 205 g after the first six weeks, this early period being ignored since the bird was very light and apparently starved when first obtained. These weights fit with the weights of wild White-faced Scops Owls as detailed by Ginn (1976) and Worden & Hall (1978).

TABLE 2

Weight of food eaten daily and body weight changes of two *Otus leucotis*

Age/sex		1st Wt (g)	2nd Wt (g)	Average Wt food/day (g)	Days.	Wt/day gained (g)
Adult female	Period 1	225	252	32.7	52	0.5 (gain)
	Period 2	252	241	22.8	16	0.7 (loss)
	Period 3	241	246	33.2	10	0.5 (gain)
Immature male	Period 1	146	214	32.7	52	1.3 (gain)
	Period 2	214	193	22.8	16	1.3 (loss)
	Period 3	193	208	33.2	10	1.5 (gain)

Table 2 shows the average quantity of food given, the initial and final weights and the rate of weight gain or loss of both birds over the three separate feeding periods mentioned above. Rates of weight gain on about 33 g of food daily over periods 1 and 3 were similar to the rate of loss on about 23 g daily during period 2, suggesting that the actual requirement was about midway between, i.e. at about 28 g per day. This may be complicated by the differing requirements of male and female, adult and immature, but it gives a figure of about 12-14 per cent for food needs as a percentage of body weight. Wastage, determined by weighing castings and discarded food (mainly hard parts of insects and bird bills, legs and wings), averaged about 5 per cent of the food provided, so that the actual daily consumption need was only about 11-13 per cent of body weight. This figure probably provided for the equivalent of hunting energy, as the birds had the run of the house and spent much time in play.

DISCUSSION

COMPARISON WITH OTHER OWLS

Worden & Hall (1978) noted that breeding White-faced Scops Owls ate 40-45 g each daily, but it is not clear whether this referred to adults, chicks or both. The adults weighed 192 and 206 g, so the food eaten averaged 19.4 to 23.4 per cent of adult body weight, which seems high, but might imply low body weights during breeding. Breeding birds probably require more energy for hunting and perhaps waste more food when feeding chicks. It should be noted in this context that Snelling (1969) found from the food requirements of captive chicks of the Tawny Eagle *Aquila rapax*, that an adult pair feeding chicks would need to catch more than 1½ times their usual weight of food daily.

Summer food needs for owls in the U.S.A., as reported by Craighead & Craighead (1956), are included in Table 3. Requirements were similar, for birds of similar weight, to those found for the two African species. Winter needs in the U.S.A. were higher, except in the Great Grey Owl *Strix nebulosa* which has a very efficient body insulation (L.H. Brown, pers. comm.)

TABLE 3

Food, as a percentage of body weight, required by raptors

Species	Body weight (g)	Wt of food daily (g)	Food as % body wt	References for %
Screech Owl <i>Otus asio</i> (summer)	134	14	10.3	Craighead & Craighead 1956
White-faced Scops Owl <i>O. leucotis</i>	205-240	26-27	11-13	this study
Great Horned Owl <i>Bubo virginianus</i> summer	1100-1200	82-85	7.0-7.4	Craighead & Craighead 1956
Verreaux's Eagle Owl <i>B. lacteus</i> (male)	1600-1625	80-82	5	this study
(female)	2525-2610	126-130	5?	
Eurasian Sparrowhawk <i>Accipiter nisus</i>	240	50	21	Brown 1970
African Hawk Eagle <i>Hieraaetus dubius</i>	714-940	120-125	15	Brown & Davey 1978
Wahlberg's Eagle <i>Aquila wahlbergi</i>	800-1000	80-100	10	Brown 1970
Tawny Eagle <i>A. rapax</i>	2150-2326	150	6.5-7.0	Snelling 1969
Fish Eagle <i>Haliaeetus vocifer</i>	2634-2900	132-145	5	Brown (pers. comm.)
Crowned Eagle <i>Stephanoaetus coronatus</i>	3500	210	6	Brown 1970, 1971
Golden Eagle <i>A. chrysaetos</i>	3500-4000	230-240	6.0-6.5	Brown 1971, 1976

COMPARISON OF OWLS WITH DIURNAL RAPTORS

Table 3 lists the reported food requirements and body weights of a variety of owls and diurnal raptors, data being taken both from Africa and from temperate latitudes in summer. Where given, body weight data were taken from the authority cited for food requirement, otherwise they were taken from Ginn (1976), Britton (1970) or Skead (1977). Within both groups of birds of prey, daily food requirement as a percentage of body weight clearly decreases with body size, but it would seem that an owl of given weight requires less food than a diurnal raptor of the same weight. This conclusion is emphasized by Fig. 1, in which daily food requirement is plotted against body weight.

L.H. Brown (pers. comm.) suggested that the Fish Eagle *Haliaeetus vocifer* is not an energetic hunter and hence requires less food than other eagles of similar body weight; owls are also not very energetic hunters and may be better insulated than diurnal raptors, so that their food requirement would be less

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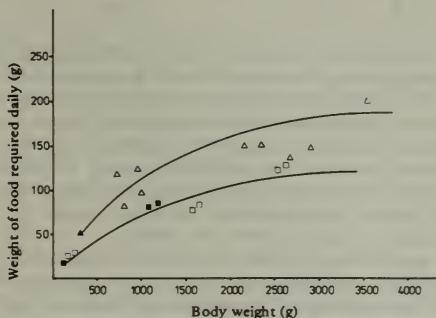


Fig. 1 Weight of food required by diurnal raptors and owls. African diurnal raptors = Δ , European diurnal raptors = \blacktriangle , African owls = \square , U.S.A. owls (summer) = \blacksquare

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Mrs Dale B. Hanmer, Sucoma, P/Bag 50, Blantyre, Malaŵi

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